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Attention Deficit Hyperactivity Disorder: An Examination of Multi-modal Interventions on Disruptive Behavior of Children with ADHD in the Classroom Setting

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Attention Deficit Hyperactivity Disorder: An Examination of Multi-Modal Interventions
on Disruptive Behavior of Children with ADHD in the Classroom Setting

Submitted by Christine Mann
May 11, 2012

MSW Clinical Research Paper

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present their findings. This project is neither a Master's thesis nor a dissertation.

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Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common childhood disorders. Key behaviors of ADHD include inattention, hyperactivity and impulsivity. Children may often present with these symptoms, but they must be severe and occur for more than six months to be diagnosed with ADHD. Scientists are not sure what causes ADHD, but like many other illnesses, ADHD may result from a combination of factors. These include: genetics, environmental factors and possibly food additives (National Institute of Mental Health, 2011).

ADHD is a chronic disorder that is associated with deficits in multiple areas of functioning (DuPaul, 2006). Areas of functioning that are disrupted by ADHD include: social skills, academic success, behavioral problems and emotional issues (National Institute of Mental Health, 2011). ADHD is recognized as a universal disorder, with an ever-growing international acceptance of both its existence and its status as a chronic disabling condition, for which combinations of medications and psychosocial treatments and accommodations may offer the most effective approach to management (Barkley, 2006).

School problems are typically the reason a child's ADHD is recognized (Sears & Thompson, 2003). Teachers often notice the symptoms of ADHD first when a child has trouble following rules in the classroom or playground (National Institute of Mental Health, 2011). According to the U.S. Department of Education (2008) a child may express hyperactivity by having a difficult time staying seated and may appear fidgety. Impulsivity is displayed by blurting out answers to questions and flitting from one task to another without finishing. Inattention may be displayed by misplacing needed items,

making careless mistakes and failing to give close attention to details. These disruptive behaviors negatively impact the student and classroom environment and without proper identification and treatment, ADHD may lead to serious consequences including school failure, relationship difficulties, family stress, delinquency and substance abuse (National Resource Center on ADHD, 2011).

ADHD creates impairments in several areas of functioning and with a proper diagnosis; interventions can be utilized to deal with these impairments. Disruptive behavior is a common problem that children with ADHD possess and this creates impairments in school and at home. Examples of disruptive behavior include: inappropriate activity level, poor attention span, and inconsistent behavior. (Sears & Thompson, 2003). These behaviors make it difficult for a child with ADHD to succeed at school (Young & Amarasinghe, 2010).

In order to treat ADHD, a proper diagnosis must be made. There is no single test to diagnose ADHD and a comprehensive evaluation is necessary to establish a diagnosis and rule out other potential causes. An evaluation should include an assessment of a person's social, emotional and academic functioning, as well as their developmental level. History from the child's parents and teachers should be obtained, when appropriate (National Resource Center on ADHD, 2011).

Conditions may co-exist with children diagnosed with ADHD, these include: Conduct Disorder (CD), Oppositional Defiant Disorder (ODD), Anxiety and Depression (National Institute of Mental Health, 2011). Several research findings have linked ADHD to substance abuse disorders (SUD) (Realmuto, Winters, August, Lee, Fahnhorst & Botzet, 2009; Biederman, Petty, Monuteaux, Fried, Byrne, Mirto, Spencer, Wilens,

Faraone, 2010; Wilens, Martelon, Joshi, Bateman, Fried, Petty, Biederman, 2011; Lee, Humphreys, Flory, Liu & Glass, 2011; Charach, Yeung, Climans, Lillie, 2011; Gray, Riggs, Min, Mijulich-Gilbertson, Bandyopadhyay, Winhusen, 2011; Szobot, Rohde, Bukstein, Molina, Martins, Ruaro, Pechansky, 2007). Co-occurring disorders, such as ADHD and substance abuse disorders, can disrupt daily life and create psychosocial problems.

There is no cure for ADHD, but treatment can relieve many of the disorder's symptoms (National Institute of Mental Health, 2011). Available treatments for ADHD include medication, parent skills training and behavioral therapy. This combination of treatment interventions is known as a multi-modal treatment program and according to several research studies and reviews, has been determined as an effective treatment method for ADHD (Young & Amarasinghe, 2010; DuPaul & Weyandt, 2006; Litner, 2003; Mautone, Lefler & Power, 2011; Greenburg, Weissburg, O'Brien, Zins, Fredericks, Resnik & Elias, 2003). According to Charach and colleagues (2011) children with ADHD cannot be simply treated clinically, but school-based and community-based alternatives must be utilized to ensure that children with ADHD avoid poor mental health outcomes.

In order to prevent further psychosocial problems for children with ADHD, including disruptive behaviors in the classroom and problems with SUD, research is needed to determine the effectiveness of interventions and strategies that can be utilized to serve children with ADHD. This research study proposes to investigate the perception of teachers and school social workers about the effectiveness of multi-modal strategies on disruptive behavior of children with ADHD in the classroom setting. Additionally, this

research study proposes to examine teachers and school social workers perceptions of ADHD, in relation to substance use disorders (SUD).

Literature Review

Childhood ADHD

ADHD is a neurological syndrome with symptoms that include impulsivity, hyperactivity and distractibility. This condition occurs in all age groups and cuts across socioeconomic and ethnic groups. ADHD was once thought to be a childhood disorder, but it has been discovered that two-thirds have it throughout adulthood (Hallowell & Ratey, 1994). ADHD is one of the most common childhood disorders. Children with ADHD have a difficult time staying focused, controlling their behavior and paying attention. Symptoms usually appear between the ages of 3 and 6 years (National Institute of Mental Health, 2011).

Various causes of ADHD have been proposed, including brain damage, trauma during pregnancy and/or childbirth, toxins and infections. Evidence has continued to mount and ADHD appears to be associated with structural and/or functional differences in the brain, namely the frontal lobes, basal ganglia and cerebellum. Neurological and genetic factors contribute to the symptoms of ADHD and the occurrence of the disorder. Hereditary factors appear to play the greatest role in the incidence of childhood symptoms of ADHD. The condition can be exacerbated by exposure to toxins, neurological disease and pregnancy complications. Contrary to public belief, no research is available that can account for ADHD based on social causes (Barkley, 2006).

According to the CDC, approximately (9.5) percent or (5.4) million children, 4-17 years of age have been diagnosed with ADHD, as of 2007. Rates of ADHD diagnosis increased an average of three percent per year from 1997 to 2006 and an average of (5.5) percent per year from 2003 to 2007 (Centers for Disease Control, 2011).

The National Institute of Mental Health (2011) reports ADHD can be difficult to diagnose. There is no clear line of demarcation between normal behavior and ADHD.

One must make a judgment as to the severity of distractibility, impulsiveness and restlessness compared to the child's peers (Hallowell & Ratey, 1994). Two common errors in the diagnostic process are missing the diagnosis or making it too often.

According to Hallowell and Ratey (1994) childhood ADHD often goes unrecognized and undiagnosed. ADHD is a comparative diagnosis; diagnosis depends not only on symptomology, but duration and intensity of the symptoms. Diagnosis needs to be made as early as possible to deter damaging labels for children, such as bad and defiant (Hallowell & Ratey, 1994).

ADHD cannot be diagnosed with a single test. To make a diagnosis, a comprehensive evaluation is necessary and a licensed professional performs this. Several types of professionals can diagnose ADHD, including clinical social workers, pediatricians and nurse practitioners. A comprehensive evaluation to diagnose ADHD consists of the individual's social, emotional and academic functioning. A history is taken from the parents, teachers and child for the evaluation process (National Resource Center on ADHD, 2011). During the evaluation, the professional will complete behavior checklists and assessment forms to gather comprehensive information. Some of the assessment tools used to gather information include: NICHQ Vanderbilt Assessment and the Connors Rating Scale (National Resource Center on ADHD, 2011).

A diagnosis is made using the Diagnostic and Statistical Manual IV-TR (2000). The following is the diagnostic criteria for Attention Deficit Hyperactivity Disorder.

To fit criteria for ADHD, six symptoms of inattention or hyperactivity-impulsivity must have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level. Symptoms of inattention include: often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities; often has difficulty sustaining attention in tasks or play activities; often does not seem to listen when spoken to directly; often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace to oppositional behavior or failure to understand instructions; often has difficulty organizing tasks and activities; often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort: often loses things necessary for tasks or activities; is often easily distracted by extraneous stimuli; is often forgetful in daily activities.

Symptoms of hyperactivity-impulsivity include: often fidgets with hands or feet or squirms in seat; often leaves seat in classroom or in other situations in which remaining seated is expected; often runs about or climbs excessively in situations in which it is inappropriate; often has difficulty playing or engaging in leisure activities quietly; is often “on the go” or acts as if “driven by a motor”; often talks excessively; often blurts out answers before questions have been completed; often has difficulty awaiting turn; often interrupts or intrudes on others.

Additional diagnostic criteria include: hyperactive—impulsive or inattentive symptoms that caused impairment and were present before age 7 years. Impairment from the symptoms needs to be present in two or more settings (e.g., at school or work and at home) and there must be clear evidence of clinically significant impairment in social, academic or occupational functioning. The symptoms can not occur exclusively during

the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder, and can not be accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder). There are three types of Attention-Deficit Disorder: Attention-Deficit/Hyperactivity Disorder, Combined Type; Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type and Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type (American Psychiatric Association, 2000).

The goal of the evaluation process is to determine the presence or absence of ADHD and differential diagnosis from other childhood disorders. A second purpose for the evaluation is to delineate types of interventions to address impairments the child may have. Another important purpose of the assessment is to determine conditions that coexist with ADHD and how this affects treatment decision making (Barkley, 2006).

ADHD in the Classroom Setting

Children with ADHD face problems in several areas of their lives including: academic, social and psychological impairment. In the classroom setting, children with ADHD face difficulties with learning and teachers are up against the student's oppositionality, social anxiety, attention difficulty and low self-esteem (Mate, 1999). Emotional problems and peer relational problems exist, which lead to the child with ADHD to feel sad, anxious, isolated and lower their self-esteem. These problems make it difficult for a child with ADHD to succeed at school (Young & Amarasinghe, 2010).

Most often, teachers are the first ones to notice symptoms of ADHD and educators must be aware of the signs and symptoms of this illness so it can be properly treated (Barkley, 2006). To assess the extent of symptoms of ADHD that occur in the

classroom, an evaluation is performed and this involves direct observation of the child in the classroom. It is important to compare the behavior of the child with ADHD to the behaviors of other students in the class and information is often collected during two or three observations (U.S. Department of Education, 2003). According to the National Resource Center on ADHD, the earlier the problems are addressed, the greater likelihood that one will be able to prevent school and social failure related to ADHD (National Resource Center on ADHD, 2011).

Disruptive Behaviors in the School Setting.

Disruptive behaviors in the classroom include inattention, such as being easily distracted and struggling to follow instructions. Hyperactivity, such as fidgeting and squirming, talking nonstop and having a difficult time doing quiet activities. Impulsivity, such as interrupting conversations, blurting out inappropriate comments and being very impatient (National Institute of Mental Health, 2011). These are examples of disruptive behavior that is exhibited by children with ADHD, but there are several others worth noting. A child with ADHD may exhibit other traits such as rapid mood swings, difficulty adjusting to sudden changes in routines, overreacting to disturbances and difficulty in delaying gratification (Sears & Thompson, 2003).

A meta-analysis completed by Stage and Quiroz (1997) suggests that interventions reported in their study were successful at reducing disruptive behaviors for 78 percent of the treated students, compared to non-treated students. Several interventions were noted in their study including, individual counseling, parent training, behavioral interventions, exercise, home-based and multimodal intervention. This study saw no statistical significant difference in outcome while using one specific type of

behavioral consequence. Group contingencies, self-management and differential reinforcement interventions resulted in the largest reduction of classroom behavior (85%).

Another study completed by Pelham, Carlson, Sams, Vallano, Dixon and Hoza (1993) evaluated the separate and combined effects of medication e.g. Methylphenidate and behavior modification on the classroom behavior of boys with ADHD. Results of this study indicate that the combination of the two treatments were more effective than behavior modification alone, but improvements were limited compared to those receiving medication alone.

A second meta-analysis reviewed completed by DuPaul and Eckert (1997) indicated that school-based interventions for children with ADHD have significant behavioral effects. Examples of school-based interventions include contingency management and academic interventions. DuPaul and Eckert (1997) note that school-based interventions are mildly effective in enhancing academic performance which differs than the results of Pelham and colleagues, (1993) who discovered that medication alone had the only beneficial effect on children's academic performance.

ADHD and SUD

Co-occurring disorders are common for children with ADHD. These include, depression, anxiety, oppositional defiant disorder, conduct disorder and substance abuse (National Institute of Mental Health, 2011). When co-existing conditions exist, behavioral, emotional and academic problems may be more complex (National Resource Center on ADHD, 2011). In the literature reviewed, several studies were found that examined the association between ADHD and drug use (e.g., Realmuto et al., 2009;

Biederman et al., 2010; Wilens et al., 2011; Lee et al., 2011; Charach et al., 2011, Gray et al., 2011; Szobot et al., 2007). Results were similar in that each study determined that a risk exists between ADHD and substance use disorders. Substances of abuse included: tobacco, alcohol, marijuana, stimulants and other illicit substances.

The longitudinal studies reviewed (e.g., Realmuto et al., 2009; Wilens et al., 2011; Biederman et al., 2010) note a strong association between ADHD and SUD. Realmuto and colleagues (2009) indicate that youth with ADHD have higher odds for developing alcohol and marijuana use disorders and tobacco use. Wilens and colleagues (2011) indicate that individuals with ADHD were 1.47 times more likely to develop a SUD. ADHD was a significant risk factor for drug-use disorders and subjects with ADHD had an earlier onset of SUD. Lee and colleagues (2011) indicate that children with ADHD have a significant relation to increased risk of substance use disorders, including: alcohol, marijuana, cocaine and nicotine.

Co-morbidity was another factor that impacted ADHD and rates of SUD. In Wilens and colleagues (2011) concluded that subjects with ADHD, comorbid with conduct disorder and/or oppositional defiant disorders were significant predictors of SUD (p. 547). A review performed by Lee and colleagues (2011) determined that comorbidity with ODD and/or CD may demonstrate significantly greater substance problems than children with ADHD only (p.334).

In the studies reviewed, only two examined how medication and/or therapy may play a role in outcomes of teenagers with ADHD and SUD. According to Beiderman and colleagues (2010) 93% of the girls in the ADHD group had received therapy at sometime in their life, 21% received medication alone and 71% received medication and counseling

at some point. Wilens and colleagues (2011) examined baseline reports of treatment and therapy utilized versus other types of treatment. Findings suggested that medication was not significantly associated with a substance use disorder.

Multi-Modal Treatment

Several reviews and articles regarding treatment strategies for children with ADHD were examined and they all shared a common theme: multi-modal treatment options (Young et al., 2010; DuPaul et al., 2006; Litner, 2003; Mautone et al. 2011 Greenburg, et al., 2003). Multimodal interventions combine a variety of different treatment and supports. Examples of multimodal treatment include: behavioral therapy, parent skills training, educational programs and training for study and social skills (Howe, 2010).

According to the National Resource Center on ADHD (2011) a comprehensive approach to treatment called multi-modal includes: behavior management, parent/child education, medication and school programming. ADHD is not a condition that lends itself to single treatment approaches. To address all of the problems that children with ADHD present, clinicians must employ multiple treatment strategies, each of which addresses a different aspect of these children's psychosocial difficulties (Barkley, 2006).

A multimodal treatment study of children with ADHD (MTA) was published in 2009. This was the first study that compared different treatments for ADHD in childhood. Three groups of children were assigned to separate intensive treatment groups (medication alone, psychosocial/behavioral treatment and a combination of both). Results of this study indicate that children have better functioning in social skills and parent/child

relations when they received a combination of therapies (National Institute of Mental Health, 2009).

Long-term multimodal treatment is necessary across the classroom and school years (DuPaul et al., 2006). Mautone and colleagues (2011) identified that a multi-systemic approach that targets family and school is a way to optimize the effects of the interventions. Treatment strategies in the schools need to be focused on multiple targets and include interventions focusing on areas such as social interactions, academic performance and behavioral control (DuPaul et al., 2006).

Well-implemented school based prevention and youth development programming can positively influence children with ADHD in their social and academic outcomes. Key strategies include: school-based prevention, relationship-oriented and student-focused. Relationships with students, staff and parents should be fostered. Multi-component programs are more likely to promote benefits (Greenberg et al., 2003).

School-Based Behavioral Interventions. Part of a multi-modal system is behavioral modification in the school setting. Classroom interventions may be implemented and these include behavioral techniques used by the teacher (Young et al. 2010). The goal of school interventions is to manage ADHD symptoms and minimize harm to the student (Barkley, 2006). Examples of harm to a student with ADHD is failing grades, expulsion and peer rejection.

Behavioral interventions for ADHD include a range of modifications to the classroom environment, academic tasks, in-class consequences, home-based programs and behavioral interventions. Behavioral interventions include: teaching skills, academic performance and transitional situations. Rules, consequences, incentives and

reinforcements for behavior, accountability and modification are all ways to intervene in the classroom and beyond (Barkley, 2006).

Interventions, while successful, only work while they are being implemented, and even then they require continued monitoring and modification over time for maximal effectiveness. School-based interventions can be quite powerful while they are being administered, but consistency is essential for the interventions to be effective.

Interventions should address a child's individual needs and should be implemented in all settings in which problems exist (Barkley, 2006).

On-going communication between parents, staff and students is recommended for affective treatment of ADHD. Management of children with ADHD requires a proactive stance, which includes the identification of emotional, social, familiar and academic factors and how these are impacted by the illness. These factors do not operate independently, but rather they are interdependent and must be linked when plans are made for treatment (Litner, 2003).

To ensure educational success, teachers must be actively engaged and willing to work with students with ADHD. To prepare teachers to manage the behaviors that accompany ADHD, education and training are essential. Education and training assists teachers in the development of classroom strategies for students with ADHD and helps them to effectively monitor students. Teachers should be provided with ongoing consultation to help plan behavioral interventions and be supported in their efforts to work with students with ADHD. Parents are also encouraged to be actively involved in their child's educational program and to follow through with behaviors such as positive reinforcement (Barkley, 2006).

Several research studies and reviews were examined and all of them identified the effectiveness of behavioral treatment implemented in the classroom (Fabiano et al., 2009; Pelham, Wheeler & Chronis, 1998; Stage & Quiroz, 1997; Pelham, Carlson, Sams, Vallano, Dixon, Hoza, 1993; DuPaul, George & Eckert, 1997; Young & Amarasinghe, 2010; DuPaul & Weyandt, 2006).

According to DuPaul and colleagues (2006) there is strong evidence that behavioral interventions reduce disruptive and off-task behaviors in children with ADHD. Fabiano and colleagues (2009) identified that behavioral interventions implemented in the school, home or social environment result in substantial improvement and are effective for treating ADHD. Behavioral classroom interventions meet the criteria for well-established treatment of ADHD. The efficacy of these interventions depends on the capabilities and motivation of the significant adults in the child's life (Pelham et al., 1998).

Parent Training. Parent training (PT) is another strategy used in a multi-modal treatment program for children with ADHD. Parent training gives parents specific skills to deal with behaviors in a positive way (American Academy of Pediatrics, 2001). Researchers and practitioners regard PT as a treatment option that should be given serious consideration for inclusion in any multi-modal intervention program for ADHD (Barkley, 2006).

Many variations of PT exist, but all share a common therapeutic objective—namely, to teach parents specialized child management techniques. Most PT programs involve methods of contingency management, including tactics, such as transition planning and altering tasks and settings to be more conducive to performance by children

with ADHD. Reactive tactics are also included, such as positive attending, token or point systems, response cost, and time-out from reinforcement. Monitoring with daily school behavior report cards are also included for tracking and responding to child behavior when away from home. Other PT programs incorporate additional therapeutic components that systematically provide parents with factual information about ADHD and enhances parental knowledge, which can result in significant beneficial changes in child and parent behavior in its own right (Barkley, 2006).

A review completed by Young and colleagues (2010) identified that parent training is one of the predominant choices of non-pharmacological interventions. Management strategies of PT identified in this study include teaching techniques to parents to target and monitor problematic behaviors, reward of prosocial behaviors, decrease of unwanted behaviors and to address parental risk factors. One of the advantages of using PT is that it can be used to target not only the child's primary ADHD symptoms, but also comorbid features that may be present or emerging, including oppositional defiant behavior and conduct problems (Barkley, 2006)

Medication Management. Stimulant medication is a safe and effective way to alleviate ADHD symptoms (American Academy of Pediatrics, 2001). According to the National Institute of Mental Health (2011) stimulants are the most common type of medication used to treat ADHD. There are many types of medications available to treat ADHD and they work to reduce hyperactivity, impulsivity and improve a child's ability to learn and focus.

According to Barkley (2006) treatment with stimulant medication should always be part of a treatment plan for the child and adolescent with ADHD. Stimulants have

demonstrated great success in children and adolescents, used in combination with other psycho-educational interventions as part of a treatment plan. 70-80% of children have positive response to stimulants.

Stimulant medications do have side effects, and the most commonly reported are: decreased appetite, irritability and sleep problems. Stimulant medications are considered safe, but children with ADHD must be monitored closely by a physician and caregivers (National Institute of Mental Health, 2011).

Contextual Framework

This study adopts a biopsychosocial framework to theoretically guide the research. The biopsychosocial approach is a model that deems human behavior to be the product of interactions of integrated biological, psychological and social systems (Hutchinson, 2011). George Engel developed the biopsychosocial perspective. George Engel formulated the biopsychosocial model as a dynamic, interactional, but dualistic view of human experience in which there is mutual influence of mind and body. It is a way of understanding the patient's subjective experience as a contributor to diagnosis, outcome and care (Borrell-Carrio, Suchman & Epstein 2004).

The biopsychosocial model provides an understanding or perspective of the disease process (Borrell-Carrio, Suchman & Epstein 2004). According to Levine (2000), a biopsychosocial perspective supports practice approaches that confront that array of biological, psychological and social contributors. The biopsychosocial model was a call to change our (clinician's) way of understanding the patient and to expand the domain of medical knowledge to address the needs of each patient. The biopsychosocial model is both a philosophy of clinical care and a practical clinical guide. Philosophically, it is a way of understanding how suffering, disease, and illness are affected by multiple levels of organization, from the societal to the molecular. At the practical level, it is a way of understanding the patient's subjective experience as an essential contributor to accurate diagnosis, health outcomes, and humane care (Borrell-Carrio, Suchman & Epstein 2004).

Due to the complexity of people, social workers should focus on the dynamic interaction among biological, psychological and social aspects of development. Aspects of development act together to affect an individual's overall growth and maturity. In the

context of professional values and ethics, the social worker assesses the functioning of bio-psycho-social dimensions. (Zastrow, Kirst-Ashman, 2007).

To fully integrate the biopsychosocial perspective in the assessment and treatment of children with ADHD, it is important to understand the biological and psychological correlates of ADHD (Cooper, 2008). In order to achieve this, training for social workers must include education on descriptive symptoms and medical influences of ADHD as well as factors such as family stress and race (Levine, 2000). Failure to engage constructively with the biopsychosocial perspective will be to the detriment to all children with ADHD (Cooper, 2008).

Methods

Research Design

The purpose of this research is to examine the perceptions of teachers and school social workers about the effectiveness of multi-modal strategies on disruptive behavior of children with ADHD in the classroom setting. In addition, this research study examined teachers and school social workers perceptions of ADHD, in relation to substance use disorders (SUD). For this study, cross-sectional research was used, which focused on a cross-section of a population at one point in time (Monett, Sullivan & DeJong, 2011). The research design is a cross-sectional written survey with quantitative and qualitative questions. The survey was conducted online via Qualtrics. An email with a link to the survey was sent out to school social workers and to teachers in the state of Minnesota. The link directed the participants to the survey questions.

Sample

This study is a nonprobability sample that is based on availability and purposive in nature. The target population for this study is school social workers and teachers in Minnesota. The sample is purposive in nature, as it best serves the purposes of this study (Monett, Sullivan & DeJong, 2011). Participants for this study were selected using the Minnesota School Social Worker Association Website and school districts' online staff directories. A membership to the Minnesota School Social Worker Association was obtained in order to receive a list of said members. School social workers were randomly selected from the list and emailed a short description of the study and a link to the survey. Teachers were chosen at random from the online school districts' directories and emailed a short description of the study and link to the survey, as did the other participants in the

study. Once participants clicked the link to the survey, they were directed to a page that described the research project in detail and served as a letter of informed consent to the participants.

Protection of Human Subjects

The research has been designed to protect the participants in the study. All participants were provided an informed consent at the beginning of the survey (Appendix B) and information obtained will remain confidential. The target population for the survey is school social workers and teachers. They are professionals and not a vulnerable group. The study is anonymous, as each participant was emailed separately.

The survey instrument contains questions that are not sensitive and the study is anonymous as it is distributed online. There are no identified risks or benefits associated with the participation in the study. Participation in the survey is voluntary and if the participant decided to click the link, it took them directly to the survey at Qualtrics. The participants were able to exit the survey at any time without repercussions. The study was proposed to the University of St. Thomas Institutional Review Board.

Measurement

Data was collected through a survey instrument, which was developed by the researcher (Appendix C). The survey consists of 25 questions, 24 are quantitative in nature and one is a qualitative question. The questions addressed different aspects of ADHD and how it affects the student's behavior and the general classroom as well. Some of the questions were created by utilizing the National Institute of Mental Health publication on ADHD, specifically, the key behaviors of inattention, hyperactivity and impulsivity (NIDA, 2011). Many of the questions were created based on information

obtained from the literature reviewed, including but not limited to, types of interventions used to treat children with ADHD.

Respondents were asked whether they have worked with students with ADHD. If they have never worked with a student with ADHD, they were thanked for their time and urged to exit the survey because they did not fit the inclusion criteria for the study. This information was outlined in the recruitment email that was sent out. Respondents were next asked to identify if they were familiar with multi-modal treatment interventions. If they answered “no” to this question, they were asked to exit the survey, as they did not fit the inclusion criteria for the study. If respondents answered “no” to question two, they were asked to identify the size of the population in which they work. Respondents were then asked to identify if they are a school social worker or a teacher and to identify approximately how many children they have worked with that have ADHD. The fifth question asked the respondents to identify which interventions they have used. The answers included commonly used classroom behavioral approaches such as, token systems, in-class consequences and academic interventions to name a few.

Six questions asked respondents about specific behaviors of ADHD and how this impacts the classroom setting. Sample questions include: “Of the following symptoms of ADHD, which seems to negatively affect the child’s behavior the most?” Respondents were provided three choices that include inattention, hyperactivity and impulsivity and asked to check the one that has the greatest impact on a child’s behavior. “To what extent does a student’s tendency to interrupt others’ conversations and activities affect the classroom setting? Respondents were prompted to circle the appropriate number on a five-point Likert scale; one, being not at all, to five, being a great deal. Two questions

prompted respondents to identify what interventions are commonly used to manage disruptive behaviors of children with ADHD and which are the most effective.

Respondents were asked to note how often multi-modal approaches are utilized and again, a five-point Likert scale was used. Participants were then asked to identify if multi-modal interventions or single interventions are more effective to manage disruptive behaviors and then asked to rate to what extent multi-modal interventions are effective to decrease disruptive behaviors in students with ADHD.

Six questions asked respondents about the effectiveness of multi-modal interventions to reduce specific behaviors of ADHD. Sample questions include: “ Q18. To what extent do multi-modal interventions decrease a student’s tendency to interrupt others’ conversations and activities?” Respondents were prompted to circle the appropriate number on a five-point Likert scale; one, being not at all, to five, being a great deal.

The final question, which is qualitative in nature, asked the participants to define what strategies are helpful in their experience to deal with disruptive behaviors of students with ADHD.

Data Analysis

Data analysis for this study was completed using IBM SPSS Statistics 20, data analysis software. Descriptive statistics was used to organize, summarize and interpret the data (Monette et al., 2011). Descriptive statistics were used to analyze the data gathered from the quantitative questions on the survey tool. Measurements of central tendency and measures of dispersion were described, along with standard deviation and range.

Inferential statistics were performed to allow generalizations to be made from the data. Examples of inferential statistics performed include chi-square and t-test. A simple frequency distribution was constructed and used to describe the data collected (Monette et al., 2011).

To analyze the qualitative data, content analysis was utilized to examine the data collected. The data was open coded and the contents were organized to identify findings. Themes in the data were then identified and comparisons were made to the existing literature (Monette et al., 2011).

Findings

Descriptive Analysis

As planned, the survey was sent to 250 school social workers and teachers via email. Among them, 75 respondents initiated their survey. Over two-thirds of them, 52 social workers and teachers completed the survey. The response rate of participants was 21 percent. The first question measures the respondents' familiarity with a multi-modal approach. As shown in Table 1, 56 respondents (74.7%) reported that they are familiar with the approach and 12 respondents (16.0%) identified they were not familiar with the multi-modal approach. If the respondents were not familiar with the multi-modal approach, they were directed to the end of the survey.

Table 1. *Familiarity with a Multi-modal Approach*

Familiarity		Frequency	Percent	Valid Percent
	Yes	56	74.7	82.4
	No	12	16.0	17.6
	Total	68	90.7	100.0
Missing	System	7	9.3	
Total		75	100.0	

The respondents were asked to identify their occupation and this was measured as a nominal variable. The variable was classified as social worker or teacher. Table 2 shows that 45 respondents (86.5%) are school social workers and seven respondents (13.5%) are teachers.

Table 2. *Respondents' Occupation*

Occupation	Frequency	Percent	Valid Percent
School Social Worker	45	60.0	86.5
Teacher	7	9.3	13.5
Total	52	69.3	100.0
Missing System	23	30.7	
Total	75	100.0	

Negative symptoms of ADHD. This study measures the respondents' perception on three negative symptoms of ADHD: (1) hyperactivity, (2) impulsiveness, and (3) inattention. The negative symptoms of ADHD are operationalized with the following question: "Of the following symptoms of ADHD, which seems to negatively affect the child's behavior the most?" The response items are rank ordered, "being the most challenging" (coded as 1) to "being the least challenging" (coded as 3). The findings of this study in Table 3 show that eight respondents (10.7%) recognize hyperactivity as the most challenging behavior, 27 respondents (36%) identify hyperactivity as moderately challenging, and 15 respondents (20%) find hyperactivity as the least challenging symptom of ADHD.

Table 3. *Negative Symptoms of ADHD – Hyperactivity*

Hyperactivity	Frequency	Percent	Valid Percent
Most Challenging	8	10.7	16.0
Moderately Challenging	27	36.0	54.0
Least Challenging	15	20.0	30.0
Total	50	66.7	100.0
Missing System	25	33.3	
Total	75	100.0	

Table 4 illustrates that 28 respondents (37.3%) identify impulsiveness as the most challenging symptom of ADHD, 12 respondents (16%) believe impulsiveness is

moderately challenging, and 10 respondents (13%) find impulsiveness as the least challenging symptom of ADHD.

Table 4. *Negative Symptoms of ADHD – Impulsiveness*

Impulsiveness		Frequency	Percent	Valid Percent
	Most Challenging	28	37.3	56.0
	Moderately Challenging	12	16.0	24.0
	Least Challenging	10	13.3	20.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

In Table 5, the findings show that 14 respondents (18.7%) identify inattention as the most challenging symptom of ADHD, 12 respondents (16%) recognize inattention as moderately challenging, and 24 respondents (32%) find inattention as the least challenging symptoms of ADHD.

Table 5. *Negative Symptoms of ADHD – Inattention*

		Frequency	Percent	Valid Percent
	Most Challenging	14	18.7	28.0
	Moderately Challenging	12	16.0	24.0
	Least Challenging	24	32.0	48.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

In sum, the findings indicate that the majority of respondents find impulsiveness (37.3%) the most challenging behavior of ADHD and inattention (18.7%) as the least challenging behavior.

Commonly used intervention. Another group of variables that the present study measures are the respondent's beliefs on how often interventions are used to treat

children with ADHD. The variable is operationalized with the item: “From your perspective, please rank the following intervention for students with ADHD based on the most commonly used: (1) medication, (2) school based interventions, (3) parent training, and (4) non-school based interventions.” The response items range from “most commonly used” (coded as 1) to “least used” (coded as 4). The research question for this study is: How often are medication, parent training, school based intervention and non-school based behavioral training used to treat ADHD?

Table 6 illustrates the findings in the study: 21 respondents (28%) believe that medication is most likely used, 24 respondents (32%) identify medication as commonly used, and 4 respondents (5.3%) believe medication is sometimes used for students with ADHD.

Table 6: *Commonly Used Intervention- Medication*

Medication		Frequency	Percent	Valid Percent
	Most Commonly Used	21	28.0	42.0
	Commonly Used	24	32.0	48.0
	Sometimes Used	4	5.3	8.0
	Least Used	1	1.3	2.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

Table 7 shows that 30 respondents (40%) recognize that parent training is least likely to be used to treat students with ADHD. 16 respondents (21.3%) believe that parent training is sometimes used and one respondent (1.3%) identify that parent training is most commonly used.

Table 7: *Commonly Used Intervention-Parent Training*

Parent Training		Frequency	Percent	Valid Percent
	Most Commonly Used	1	1.3	2.0
	Commonly Used	3	4.0	6.0
	Sometimes Used	16	21.3	32.0
	Least Used	30	40.0	60.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

Table 8 indicates 28 respondents (37.3%) believe that school based-interventions are most commonly used to treat students with ADHD. 19 respondents (25.3%) recognize that school-based interventions are commonly used, and two respondents (2.7%) identify that school-based interventions are least used to treat students with ADHD.

Table 8: *Commonly Used Intervention-School Based Interventions*

School Based Intervention		Frequency	Percent	Valid Percent
	Most Commonly Used	28	37.3	56.0
	Commonly Used	19	25.3	38.0
	Sometimes Used	1	1.3	2.0
	Least Used	2	2.7	4.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

The data in Table 9 show that 30 respondents (40%) believe that non-school based interventions are sometimes used to treat students with ADHD. 15 respondents (20%) note that non-school based interventions are least used and one respondent (1.3%) recognize that non-school based interventions are most commonly used to treat students with ADHD. These findings show that most respondents believe that school-based

interventions are most commonly used to treat students with ADHD; most respondents believe that parent training is least used.

Table 9: *Commonly Used Intervention-Non-School Based Intervention*

Non-School Based Intervention		Frequency	Percent	Valid Percent
	Most Commonly Used	1	1.3	2.0
	Commonly Used	4	5.3	8.0
	Sometimes Used	30	40.0	60.0
	Least Used	15	20.0	30.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

Multi-modal treatment intervention. This study also measures the respondents' beliefs on the use of multi-modal treatment interventions. This variable is operationalized with the item: "Multi-Modal Treatment Interventions are optimal for the treatment of children with ADHD." The response options range from "strongly agree" (coded as 1) to "neither agree nor disagree" (coded as 3) to "strongly disagree" (coded as 5) along a Likert scale. Table 10 shows that of the 50 respondents, 34 respondents (45.3%) strongly agree that multi-modal interventions are optimal for the treatment of children with ADHD. Fourteen respondents (18.7%) agree and two respondents (2.7%) neither agree nor disagree that multi-modal interventions are optimal for the treatment of children with ADHD.

Table 10. *Multi-Modal Treatment Intervention*

Multi-Modal Treatment		Frequency	Percent	Valid Percent
	Strongly Agree	34	45.3	68.0
	Agree	14	18.7	28.0
	Neither Agree nor Disagree	2	2.7	4.0
	Total	50	66.7	100.0
Missing	System	25	33.3	
Total		75	100.0	

Substance Use Disorder. The last question in the present study is about the respondent's belief about ADHD and substance use disorder (SUD). The variable is operationalized with the item: "ADHD increases the risk for substance use disorder?" The response options range from "strongly agree" (coded as 1) to "neither agree nor disagree" (coded as 3) to "strongly disagree" (coded as 5) along a Likert scale. The research question for this study is how many respondents' believe that ADHD increases the risk for substance use disorder? The findings of this study in Table 11 show that 11 respondents (26.2%) strongly agree, 13 (31%) agree, five (11.9%) neither agree nor disagree and two (4.8%) disagree that ADHD increases the risk for substance use disorder. These findings show that the majority of respondents agree that ADHD increases the risk for substance use disorder.

Table 11: *ADHD and Substance Use Disorder*

Substance Use Disorder		Frequency	Percent	Valid Percent
	Strongly Agree	11	26.2	35.5
	Agree	13	31.0	41.9
	Neither Agree nor Disagree	5	11.9	16.1
	Disagree	2	4.8	6.5
	Total	31	73.8	100.0
Missing	System	11	26.2	
Total		42	100.0	

Inferential Analysis

This study focuses on the effectiveness of multi-modal interventions. The scale to measure the effectiveness of multi-modal interventions was constructed with the following six variables. Those variables measured the respondents' opinion about the effectiveness of multi-modal interventions in the classroom setting. The questions include: "To what extent do multi-modal interventions decrease a student's tendency to interrupt others' conversations and activities affect the classroom setting" (14-1); "To what extent do multi-modal interventions decrease a student's tendency to fidget affect the classroom setting" (14-2); "To what extent do multi-modal interventions decrease a student's tendency to be easily distracted, miss detail, and forget things impact the classroom setting" (14-3); "To what extent do multi-modal interventions decrease a student's tendency to struggle to follow instruction affect the classroom setting" (14-4); "To what extent do multi-modal interventions decrease a student's tendency to be very impatient affect the classroom setting" (14-5); "To what extent do multi-modal interventions decrease a student's tendency to talk excessively affect the classroom setting" (14-6). Respondents are asked a series of questions about the effectiveness of

multi-modal interventions to reduce negative behaviors and asked to rate the degree this affects the classroom setting. The response items range from “not at all” (coded as 1), “seldom” (coded as 2), “sometimes” (coded as 3), “often” (coded as 4), and “a great deal” (coded as 5). By combining these six variables, the scale score for multi-modal intervention effectiveness was constructed.

The research question for the study is: Is there a difference in the perceived effectiveness of multi-modal interventions between school social workers and teachers? The research hypothesis for the study is: there is a significant difference in the perceived effectiveness of multi-modal interventions between school social workers and teachers. The null hypothesis is: there is no difference in the perceived effectiveness of multi-modal interventions between school social workers and teachers.

Table 12 and 13 show the results of the t-test comparing the mean score of the effectiveness between social workers and teachers. While the mean score of school social workers is 21.77, that of teachers is 18.14. The difference between these mean scores is 3.63 points. The social workers’ reported (or perceived) effectiveness of the multi-modal interventions to decrease students’ negative behaviors is higher than that of teachers. The p-value for this T-test ($t = 2.66$) is .011. Since the p-value is less than .05, the results of this data are statistically significant and we can reject the null hypothesis that there is no difference in the perceived effectiveness of multi-modal interventions between school social workers and teachers. Therefore, respondents who are school social workers score higher on the effectiveness of multi-modal interventions and negative behaviors scale than those who are teachers. The results of this study suggest that future research should explore why school social workers are more likely than teachers to believe in the

effectiveness of multi-modal interventions to reduce negative behaviors of children with ADHD in the classroom.

Table 12: *Occupational Statistics for Perceived Effectiveness of Multi-Modal Interventions*

Are you a school social worker or teacher?		N	Mean	Std. Deviation	Std. Error Mean
ONIS	School Social Worker	43	21.7674	3.37242	.51429
	Teacher	7	18.1429	3.13202	1.18379

Table 13: *Occupation and Perceived Effectiveness of Multi-Modal Interventions T-test*

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
ONIS	Equal variances assumed	.198	.658	2.660	48	.011	3.62458
	Equal variances not assumed			2.808	8.436	.022	3.62458

Qualitative Analysis

This study includes one qualitative question, which is operationalized by: “Please describe specific ways you deal with disruptive behaviors of students with ADHD in the classroom.” This question is qualitative in nature and allowed respondents to write in specific ways they deal with students with ADHD. Themes from the respondents’ include: breaks, positive reinforcement, self-monitoring and behavior. First, respondents reported having breaks: “With one student this year I have him take a moment to relax, breathe, let the tensions go; sensory breaks; break in the classroom; give breaks;

movement breaks during the day and allow breaks.” Other respondents note the use of positive reinforcement: “positive reinforcers; affirm and reward; positive rewards; I highlight what they do is right; reward system.” Third, self-monitoring is encouraged: “We are using a self-monitoring sheet with students regarding blurting; self-monitoring sheets; self-monitoring; student self-monitoring.” Fourth, behavior is also noted by respondents: “behavior report card; I use behavior charts with incentives; behavior charts; behavioral interventions; behavior plans; behavior report card.”

Discussion

This study investigated the perception of teachers and school social workers about the effectiveness of multi-modal strategies on disruptive behavior of children with ADHD in the classroom setting. Additionally, this research study examined teachers and school social workers knowledge of ADHD and SUD. There has been an extensive amount of research completed on ADHD, but this study is unique because it examined school social workers and teachers' perspectives on working with children with ADHD in the classroom setting.

The results of this study compares to that of (Young & Amarasinghe, 2010; DuPaul & Weyandt, 2006; Litner, 2003; Mautone, Lefler & Power, 2011; Greenburg, Weissburg, O'Brien, Zins, Fredericks, Resnik & Elias, 2003) whose findings confirmed that multi-modal treatment interventions are optimal for treatment of children with ADHD. A majority of the respondents in this research study believe that multi-modal treatment interventions are optimal for treatment of children with ADHD. According to Greenburg et al., (2003) multi-year, multicomponent programs are more likely to promote lasting benefits than short-term interventions. Barkley (2006) identifies that combined treatment has shown to be better than unimodal treatment in certain subsets of children with ADHD.

The findings in this study indicate that a majority of respondents (74.7%) are familiar with multi-modal treatment interventions, while 16 percent of respondents are not familiar with multi-modal treatment interventions. This finding suggests that more education and training should be available to school social workers and teachers to make them aware of multi-modal treatment interventions. According to Barkley (2006)

teacher's knowledge and attitudes about ADHD are extremely important and a positive teacher-student relationship can improve academic and social functioning. Teachers that have a poor grasp of ADHD have little impact on the success of the child. The success of students with ADHD is dependent upon solving the problem of the lack of training and resources for teachers and the development of evidence-based programs.

Evidence-based programs for children with ADHD include school-based interventions (behavioral), parent training, medication and interventions that take place outside the educational institution (Fabiano et al., 2009; Pelham, Wheeler & Chronis, 1998; Stage & Quiroz, 1997; Pelham, Carlson, Sams, Vallano, Dixon, Hoza, 1993; DuPaul, George & Eckert, 1997; Young & Amarasinghe, 2010; DuPaul & Weyandt, 2006; Barkley, 2006). According to the findings of this study, a majority of respondents believe that school-based interventions are most commonly used to treat children with ADHD. Barkley (2006) notes that school-based interventions produce significant improvement in symptom management. The respondents in this study believe that medication is the second most commonly used intervention for children with ADHD, followed by non-school based interventions as the third most commonly used intervention.

Respondents identified that parental training is the least commonly used intervention to treat ADHD. According to Barkley (2006) parent training is an effective treatment which can reduce disruptive behavior, parent-child conflict and parent stress. Parent training also increases parent knowledge of ADHD, which often brings about behavior changes in the child and parent. Mautone and colleagues (2011) note that

family-school collaboration seems to be the most effective way for parents to promote children's success at school.

Based on the results of this survey, school social workers and teachers perceive medication as a commonly used intervention to treat children with ADHD. Because medications are frequently used to treat ADHD, are practitioners relying too heavily upon them for symptom management instead of utilizing other techniques? Students with ADHD might be better assisted with increased behavior modification, in and out of the classroom, and parent training rather than reliance on medication to manage the symptoms of ADHD.

Respondents were asked to identify to specific techniques used to decrease disruptive behavior in the classroom. Themes in the responses include: breaks, positive reinforcement, self-monitoring and behavioral interventions. Few of the respondents mentioned anything about parental involvement, support/training for staff and/or referrals to other professional staff. Based upon the wording of the survey question, respondents may have thought appropriate answers were in-class techniques, rather than interventions in and out of the classroom.

According to the literature reviewed, (Young & Amarasinghe, 2010; DuPaul & Weyandt, 2006; Litner, 2003; Mautone, Lefler & Power, 2011; Greenburg, Weissburg, O'Brien, Zins, Fredericks, Resnik & Elias, 2003) multi-modal interventions are effective to treat childhood ADHD. Why then, is this method not being used in the school systems? Multi-modal interventions include: behavior management, parent/child education, medication and school programming. From the research gathered, it appears that parental training is not utilized as much as it could be and education and training is

lacking in the educational system. Few respondents mentioned referrals to mental health services and communication between staff and parents. According to Litner and colleagues (2003) effective management of ADHD requires constant communication between teachers and staff that have regular contact with a student with ADHD. Staff should have regular meetings with the child and their parents.

The findings in this study support the existing literature (Realmuto et al., 2009; Biederman et al., 2010; Wilens et al., 2011; Lee et al., 2011; Charach et al., 2011, Gray et al., 2011; Szobot et al., 2007) that ascertains that children with ADHD are at risk for developing SUD. A majority of respondents in this research study believe that ADHD does increase the risk of SUD.

According to inferential statistics that were performed, school social workers were more likely to believe in the effectiveness of multi-modal interventions to decrease negative behaviors. There is a significant statistical association between school social workers and teachers and their perceived effectiveness of the multi-modal interventions to decrease students' negative behaviors. This result could be due to lack of training and education of teachers and suggests that further research should be completed to determine why social workers and teachers have different beliefs on the use of multi-modal interventions to decrease student's negative behaviors in the classroom.

Limitations

This study has several limitations. The relatively small sample size limits the amount of statistical analysis that could be performed. Few of the respondents were teachers (9.3%) and this limited the amount of data included in statistical analysis comparing occupation and beliefs on ADHD. This researcher received a handful of

emails from respondents claiming technical difficulties on the Qualtrics website. This could have contributed to the small sample size. Respondents may have misinterpreted the questions in the survey and had difficulties reaching the survey via Qualtrics.

Implications for Social Work Practice.

Parent training is a necessary component of a multi-modal approach to treat children with ADHD, and according to the results of this study, it is underutilized. The findings of this study indicate that teachers and school social workers believe that parent training is the least often used intervention to treat children with ADHD. According to Barkley (2006) the need to implement interventions in all settings where problems occur should be emphasized. Many collaborative teams in the school system include parents, and clinicians should meet weekly and/or biweekly with parents and teachers to provide coaching, instruction and monitoring of the program. A collaborative approach is important to treat childhood ADHD and this approach ought to be utilized by school systems, including school social workers and teachers.

Implications for Social Work Research.

According to the results of this study, school social workers and teachers have different perceptions on the effectiveness of multi-modal interventions to manage disruptive behaviors in the classroom setting. Further research needs to be completed to determine why their perceptions differ. Additional research on ADHD is essential to the field of social work. Ideas for continued research include: interventions for treatment, comparison of education and knowledge of school social workers and teachers and associations between ADHD and substance use disorders.

Implications for Social Work Policy.

According to Section 504, which is a federal law which protects the rights of individuals with disabilities, school districts are required to provide free and adequate education to all students, including those with disabilities. A student may qualify under Section 504 if they have a physical or mental impairment, which includes students with ADHD. A Section 504 plan is designed to meet the needs of the individual and includes special services such as: IEP, special accommodations that are necessary and related services (Minnesota Department of Education, 2011). Children with ADHD frequently qualify under Section 504 to receive special services in the school system, but this is not enough to adequately serve this population. Children with ADHD need regularly scheduled meetings with parents, school officials, teachers and other staff involved in their care. In our school district, school social workers and teachers meet with the parents' quarterly. This is not sufficient and children with ADHD continue to suffer in silence. Increased knowledge and education about ADHD would be extremely beneficial and new policy initiatives ought to be in place to effectively help children with ADHD.

Conclusion

Findings from this research study suggest that multi-modal interventions are effective to decrease negative behaviors of students in the classroom setting. In this study, multi-modal interventions consist of behavioral interventions in the classroom setting, medication, parent training and non-school based interventions. In addition, findings in this research study suggest that ADHD increases the risk for SUD.

The findings from this research project add to the body of research on ADHD. School social workers and teachers can utilize the existing body of literature to increase their knowledge and understanding of ADHD. With increased knowledge, interventions can be implemented to help children with ADHD function effectively in the academic and social environment.

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Appendix A
Cover Letter

My name is Christine Mann and I am a master of social work student at the College of St. Catherine and University of St. Thomas School of Social Worker in St. Paul, MN. I am conducting a research study to examine the effects of multi-modal interventions on disruptive behavior of children with ADHD in the classroom setting. A multi-modal treatment approach refers to a treatment approach in which two or more interventions are used for children with ADHD. I request your participation in this study and as a licensed social worker and/or teacher; your knowledge is essential to this research process. As a participant in this study, it is essential that you have experience working with children that have ADHD. If you have no experience working with students with ADHD or using multi-modal interventions, your response is not needed. The records of this study will be kept confidential and your participation is completely voluntary. Please direct any questions to me at Christine.Mann@swmhc.org and/or (507) 227-4690. If you agree to participate in this study, please click the link below and you will be guided to an informed consent document, which will initiate the beginning of the study.

Your time is greatly appreciated.

Respectfully Yours,

Christine Mann

Appendix B
Letter of Informed Consent

An Examination of multi-modal interventions on disruptive behavior of children with
ADHD in the classroom setting.

My name is Christine Mann. I am conducting a study to examine the effects of multi-modal interventions on behavioral issues of children with ADHD. In addition, this research examines teachers and school social workers knowledge of ADHD and substance use disorder (SUD). I am requesting your participation in this research study because you are a school social worker and/or teacher.

I am a master of social work student at the College of St. Catherine and University of St. Thomas School of Social Work. I am conducting this research project under the supervision of Evan Choi, MSW, and PhD.

Background Information:

The purpose of this study is to review the current literature on ADHD and SUD and compare this with the knowledge of practicing clinicians. The information in this study may be beneficial to you, as it will identify the effectiveness of multi-modal interventions on disruptive behavior of children with ADHD in the classroom setting.

Procedure:

If you agree to be in this study, please complete the survey on-line. Completion of the study will take approximately 15 minutes. Please complete the study by 1/30/12.

Risks and Benefits:

There are no anticipated risks or benefits to your participation in this study. The records of this study will be kept confidential. Your participation in this study is completely voluntary. Your decision whether or not to participate will not affect your current or future relations with the College of St. Catherine or the University of St. Thomas.

Contacts and Questions:

You may contact me at (507) 227-4690 or via email at Christine.Mann@swmhc.org. You may also contact my instructor, Evan Choi at (507) 205-2077 or the University of St. Thomas Institutional Review Board at (651) 962-4869 with questions or concerns.

Statement of Consent:

By completing the survey you indicate your consent to participate in this research.

Respectfully Yours,

Christine Mann

Appendix C Survey

1. Are you currently working or have you ever worked with children who have ADHD? If your answer is “No,” you do not need to continue. Thank you for your time.
 - A. Yes
 - B. No

2. Are you familiar with a multi-modal approach for treatment of childhood ADHD?
 - A. Yes
 - B. No

If your answer is “No,” you do not need to continue the survey. Thank you for your time and please indicate the size of the community you work in.

- A. Less than 5,000
 - B. 6,000-15,000
 - C. 16,000-25,000
 - D. 26,000-35,000
 - E. More than 35,000
3. Are you a school social worker or teacher?
 - A. School Social Worker
 - B. Teacher
4. Please indicate approximately how many children you have worked with in the past year that has been diagnosed with ADHD.
 - A. _____ 1 – 4
 - B. _____ 5 – 9
 - C. _____ 10 – 14
 - D. _____ 15 or more
5. What type of intervention have you used? Please check all that apply.
 - A. _____ Token Reward System
 - B. _____ Academic Intervention
 - C. _____ Positive Reinforcement
 - D. _____ Behavior Report Cards
 - E. _____ In-Class Consequence
 - F. _____ Self-Monitoring
6. Of the following symptoms of ADHD, which seems to negatively affect the child’s behavior the most? Please rank order from 1-3 (1=being the most challenging to 3=the least challenging).
 - A. _____ Hyperactivity
 - B. _____ Impulsiveness

C. _____ Inattention

The following questions (Q6 to Q11) ask your opinion about the negative influences of children with ADHD on the classroom setting. Please circle the appropriate number.

7. To what extent does a student's tendency to interrupt others' conversations and activities affect the classroom setting?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

8. To what extent does a student's tendency to fidget affect the classroom setting?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

9. To what extent does a student's tendency to be easily distracted, miss details, and forget things impact the classroom setting?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

10. To what extent does a student's tendency to struggle to follow instructions affect the classroom setting?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

11. To what extent does a student's tendency to be very impatient affect the classroom setting?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

12. To what extent does a student's tendency to talk excessively affect the classroom setting?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

13. From your perspective, please rank the following interventions for students with ADHD based on the most commonly used (1=being most commonly used; 4=being least used).

- A. _____ Medication
- B. _____ Parent Training
- C. _____ School Based Intervention
- D. _____ Non-School Based Behavioral Intervention

14. Which of the following interventions seem to have the most effective impact on decreasing disruptive behaviors of students with ADHD? Please rank order the choices (1=being the most effective; 4=being least effective).

- A. _____ Medication
- B. _____ Parent Training
- C. _____ School Based Intervention
- D. _____ Non-School Based Behavioral Intervention

The next three questions ask about your knowledge and opinion on the multi-modal approach? In this survey, a multi-modal approach refers to a treatment approach in which two or more interventions are used for children with ADHD.

15. To what extent do you believe that multi-modal interventions are used to treat childhood ADHD? Please circle the appropriate number.

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

16. Do you believe that a multi-modal approach is more effective than using a single intervention to diminish disruptive behaviors of students with ADHD? Please circle the appropriate number.

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

17. Multi-modal treatment interventions are optimal for the treatment of children with ADHD?

- A. Strongly Agree
- B. Agree
- C. Neutral
- D. Disagree
- E. Strongly Disagree

The following questions (Q18 to Q24) ask your opinion about the use of multi-modal interventions to decrease negative behaviors of children with ADHD on the classroom setting. Please circle the appropriate number.

18. To what extent do multi-modal interventions decrease a student's tendency to interrupt others' conversations and activities?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

19. To what extent do multi-modal interventions decrease a student's tendency to fidget?

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

20. To what extent do multi-modal interventions decrease student's tendency to be easily distracted, miss details, and forget things? Please circle the appropriate number.

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

21. To what extent do multi-modal interventions decrease student's tendency to struggle to follow instructions affect the classroom setting? Please circle the appropriate number.

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

22. To what extent do multi-modal interventions decrease student's tendency to be very impatient? Please circle the appropriate number.

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

23. To what extent do multi-modal interventions decrease student's tendency to talk excessively? Please circle the appropriate number.

Not at all	Seldom	Sometimes	Often	A great deal
1	2	3	4	5

24. ADHD increases the risk for substance use disorder?

- A. Strongly Agree
- B. Agree

- C. Neutral
- D. Disagree
- E. Strongly Disagree

25. Please describe specific ways you deal with disruptive behaviors of students with ADHD in the classroom.

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